

on the following two days was giving southeasterly to northwesterly gales of force 9 near the 40th parallel and between meridians 150° and 160° east. The lowest observed pressure in connection with the disturbance was 29.28 inches recorded on board the British S. S. *Robert Dollar*, in 39° 52' N., 150° 59' E., near midnight of the 24th. This cyclone seems to have moved into the Aleutian area and thence into the Gulf of Alaska, where it remained practically stationary during the last three or four days of June.

The following vessels reported waterspouts:

American S. S. *Ensley City*:

June 6, 2 p. m. Passed a waterspout in latitude 11° 43' N., longitude 90° 30' W., traveling from SW. to NE. Dark rain clouds overhead.

American S. S. *President Jefferson*:

June 30, 8 a. m. (civil date). In latitude 37° 12' N., longitude 144° 30' E., sighted a large waterspout about 400 feet high, lasting about 10 minutes. Wind calm at the time; weather occasionally squally; sea smooth.

SOUTHWEST MONSOON IN ARABIAN SEA; GALES IN SOUTH PACIFIC OCEAN

By ALBERT J. McCURDY, Jr.

Gales in the Arabian Sea during the period June 9-23 as reported by vessels traversing shipping routes in that region point to a strong development of the southwest monsoon.

During this period the American steamships *William Penn*, *Anniston* and *Standard Arrow* encountered moderate to fresh gales.

The *William Penn*, Capt. R. H. Wright, proceeding from Singapore toward Karachi, on the 9th encountered a moderate southwesterly gale accompanied by rough seas. Mr. J. E. King, second officer, reports that the lowest pressure observed was 29.71 inches, at 5.37 p. m., in 5° 43' N., 84° 15' E. The wind at the time was SW., force 6, later increasing to force 7. Similar conditions prevailed throughout the 10th.

On the 10th the *Anniston City*, Capt. H. Doyle, proceeding from Calcutta to Boston, via Colombo, encountered a southwesterly gale in 6° 31' N., 86° 10' E. Mr.

W. J. Mullaney, third officer, states that the lowest barometer, 29.55 inches, was recorded at 11 a. m., on the 10th. The wind at this time was W., force 7, later shifting to SW., and increasing to a fresh gale that lasted until noon of the 12th. Almost identical conditions were experienced on the 22d and 23d in 12° 46' N., 55° 57' E.

From the 11th to 17th the *Standard Arrow*, Capt. J. C. Harding, proceeding from Calcutta to Port Said, steadily experienced southwesterly winds of force 7 to 8, accompanied by rough seas. The observer, Mr. W. Townsend, reports that the barometer was steady during this period, ranging between 29.72 and 29.82 inches.

The first gale in the South Pacific was associated with a disturbance off the coast of Chili that appeared on June 9 and until the 12th occasioned moderate to whole gales with high seas. The Danzig S. S. *Gedania*, Capt. T. Schroeder, bound for San Pedro from Campana (southern Chili), came within its influence on the 9th. Mr. F. Hesse, third officer, reports that the lowest pressure observed was 29.37 inches (uncorrected), occurring at noon on the 9th in 44° 54' S., 80° 46' W. The wind at this time was W. by S., force 10. Rough weather continued through the 11th.

A report of the second gale in the South Pacific was received from the British S. S. *Tahiti*, Capt. R. C. Showman, bound from Sydney to Wellington. The observer, Mr. S. Hodson, states that a fresh gale began at 10 p. m., on the 20th accompanied by frequent heavy rain squalls. The lowest barometer recorded was 30.01 inches, this occurring at 10.42 p. m., in 37° 04' S., 160° 30' E. The wind at the time was SSW., force 8. This gale lasted throughout the morning of the 21st and during that time the wind remained steady, blowing from the SSW.

The same vessel again encountered heavy squalls on the 23d, while in the vicinity of New Zealand, reporting conditions similar to those experienced in the previous storm. The lowest pressure was 29.51 inches, occurring on the 24th, in 41° 20' S., 174° 50' E. At this time the wind was W., force 7. The gale ended on the 25th. Highest force of wind 8, from SW. by W.

551.506 (73) DETAILS OF THE WEATHER IN THE UNITED STATES

GENERAL CONDITIONS

By A. J. HENRY

The cool showery weather of the previous month in northeastern United States continued through the middle of June and even into the third week of the month. On the whole the northeastern districts (east of Rocky Mountains and north of Tennessee) were cool and the remainder of the country was warm. Precipitation was very irregularly distributed, drought in Pacific Coast States and west of the Rockies continuing. The usual details follow.

CYCLONES AND ANTICYCLONES

By W. P. DAY

The low-pressure areas were generally characteristic of the month of June with an increasing frequency of development over the Rocky Mountain and Plateau regions and central interior districts. Three of these LOWS

which developed over the Plateau and Rocky Mountain regions became important storms for a day or two and then rapidly declined in intensity.

Of the 10 high-pressure areas which seemed worthy of charting only two were of much importance in their effects. The first, a HIGH of the Hudson Bay type, gave cool easterly winds to the Northeastern States and the Middle Atlantic States from the 9th until about the 13th; while the second, an Alberta HIGH, pushed down from the northwest and slowly overspread middle and northern sections east of the Rockies with abnormally cool weather over these regions from the 29th of June until about the 6th of July.

FREE-AIR SUMMARY

By V. E. JAKL, Meteorologist

The average free-air conditions over the country as determined by kites at the six aerological stations showed throughout the range of altitude covered by the observations, no important departures from normal.